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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/682,364	10/10/2003	Edythe Patricia LeFeuvre	13567-002	7812

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EXAMINER

PATEL, JAYESH A

ART UNIT	PAPER NUMBER
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2635

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/682,364

Applicant(s)

LEFEUVRE ET AL.

Examiner

Jayesh A. Patel

Art Unit

2635

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 2,9 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) ☒ Notice of References Cited (PTO-892) * | 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) ☐ Notice of Informal Patent Application |
| 3) ☒ Information Disclosure Statement(s) (PTO/SB/08) ¹
Paper No(s)/Mail Date <u>01/12/2004</u> . | 6) ☐ Other: _____ |

DETAILED ACTION

Claim Objections

Claims 2,9 and 18 are objected to because of the following informalities: The first recitation of eroded image should read dilated image as the recitation of eroded image lacks antecedent basis. Appropriate correction is required. The art rejection is based on the corrections as understood by the examiner in support of specifications.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 and 5-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Hardeberg (US 6728401) hereafter Hardeberg.

1. Regarding Claim 1, Hardeberg discloses, a method of correcting a red-eye effect in a digital image provided by a cluster of pixels in **(Fig 1 and Fig 2)** the method comprising: (a) conducting at least one tophat operation over each pixel in the digital image to provide a tophat image in **(Fig 7 Col 8 Lines 24-49)**, (b)

conducting an intensity threshold operation on the tophat image to provide a segmentation mask for segmenting objects in the digital image in **(Fig 5, Col 6 Lines 66-67 and Col 7 Lines 1-19)**, (c) for each segmented object in the segmentation mask, extracting at least one feature from at least one of the segmented object and a border region surrounding the segmented object and classifying the segmented object based on the at least one feature in **(Fig 6, Col 7 Lines 20-67 and Col 8 Lines 1-24)** and (d) for each segmented object in the segmentation mask classified as red-eye effect in step (c), correcting the red-eye effect by re-coloring the segmented object to generate a corrected image in **(Fig 8, Col 8 Lines 50-67 and Col 9 Lines 1-44)**.

2. Regarding Claim 2, Hardeberg discloses a method as defined in claim 1, wherein the tophat image is a dark tophat image, and the tophat operation comprises the steps of: conducting at least one grayscale dilation operation over each pixel in the digital image to provide a dilated image; conducting at least one grayscale erosion operation over each pixel in the eroded image to provide an eroded image; and, subtracting the digital image from the eroded image to provide the dark tophat image in **(Fig 7, Col 8 Lines 38-49)**.

3. Regarding Claim 3, Hardeberg discloses a method as defined in claim 1, wherein the tophat image is a bright tophat image, and the tophat operation comprises the steps of: conducting at least one grayscale erosion operation over

each pixel in the digital image to provide an eroded image; conducting at least one grayscale dilation operation over each pixel in the eroded image to provide a dilated image; and, subtracting the dilated image from the digital image to provide the bright tophat image in **(Fig 7, Col 8 Lines 24-37)**.

4. Regarding Claim 5, Hardeberg discloses, a method as defined in claim 1 wherein step (b) comprises, after intensity thresholding the bright tophat image, filtering out objects having compactness below a threshold level of compactness to provide the segmentation mask at **(Col 7, Lines 1-31,52-67 and Col 8, Lines 1-4)**.

5. Regarding Claim 6, Hardeberg discloses the probability of segmented object being red eye in **(Col 7 Lines 24-67 and Col 8 Lines 1-4)**.

6. Regarding Claim 7, Hardeberg discloses a method as defined in claim 1 further comprising selecting the digital image from an initial image in **(Fig 2, Col 4 Lines 1-5)**.

7. Regarding Claim 8, Hardeberg discloses a system in **(Fig 1 element 110)** for correcting a red-eye effect in a digital image provided by a cluster of high intensity pixels utilizing the methods of Claim 1 and as such the same explanation of Claim 1 applies to Claim 8. Also the fact that the corrected image

is displayed afterwards is disclosed in **Fig 1 element 110 (Col 3 Lines 45-51 and Col 4 Lines 1-4)**.

8. Regarding Claim 9, Hardeberg discloses the system of Claim 8 utilizing the method of Claim 2; as such the explanation of Claim 2 applies to Claim 9.

9. Regarding Claim 10, Hardeberg discloses the system of Claim 8 utilizing the method of Claim 3; as such the explanation of Claim 2 applies to Claim 10.

10. Regarding Claim 11, Hardeberg discloses a system for generating at least one low resolution image from the digital image in **(Fig 1 element 110 (Col 3 Lines 45-51 and Col 4 Lines 1-4))**.

11. Regarding Claim 12, Hardeberg discloses a system of Claim 8 performing a method of Claim 5; as such the same explanation of Claim 5 applies for Claim 12.

12. Regarding Claim 13, Hardeberg discloses a system of Claim 8 performing a method of Claim 6; as such the same explanation of Claim 6 applies for Claim 13.

13. Regarding Claim 14, Hardeberg discloses a system of Claim 8 and further discloses a display for displaying the initial image in **Fig 1 element 170 and (Col 3 Lines 45-58 and Col 4 Lines 1-4).**

14. Regarding Claim 15, Hardeberg discloses a system of Claim 13 and further discloses a user operable selection means for changing the threshold probability in **(Col 7 lines 2-11 and Lines 56-62).**

15. Regarding Claim 16, Hardeberg discloses a system of Claim 8 and further discloses comprising a display for displaying the corrected image; a user-operable selection means for selecting an object in the corrected image to generate a corrected image; and, a user-selectable manual override operation for (i) when the object has been classified as red-eye, uncoloring and reclassifying the object and (ii) when the object has not been classified as red-eye, reclassifying the object as red-eye and recoloring the object to correct for the red-eye effect in **(Fig 1 elements 110,170 and Col 3 Lines 45-58).**

16. Regarding Claim 17, Hardeberg discloses a computer program for performing a method of Claim 1 in the system of Claim 8. Therefore the explanations of claim 1 and Claim 8 would also apply for the Claim 17. Also **Fig 1 and (Col 3 Lines 45-55)** supports this limitation.

17. Regarding Claim 18, Hardeberg discloses a computer program of Claim 17, performing a method of Claim 2 in the system of Claim 8; as such the explanations of Claims 2, 17 and 8 would apply for Claim 18.

18. Regarding Claim 19, Hardeberg discloses a computer program of Claim 17, performing a method of Claim 3 in the system of Claim 8; as such the explanations of Claims 3, 17 and 8 would apply for Claim 19.

19. Regarding Claim 20, Hardeberg discloses a computer program product as defined in claim 17 wherein step (b) comprises, after intensity thresholding the bright tophat image filtering out objects having a compactness below a threshold level of compactness stored in the memory to provide the segmentation mask in **Fig 1 and (Col 7 Lines 2-11 and Lines 56-59).**

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Hardeberg in Further view of Benati et al. (US 5748764) hereafter Benati.

20. Regarding Claim 4, Hardeberg discloses, a method as defined in claim 1, and Hardeberg is silent about the image being a low-resolution image at the detection stage. An enlarged ROI in Fig 3a shows that it is a low-resolution image.

Benati discloses detecting and correcting red eye defect being done at various levels of resolutions at **(Col 2, Lines 44-47 and Col 3, Lines 46-62)**.

Both Hardeberg and Benati are analogous art, therefore it would have been obvious for one of ordinary skill in the art, at the time the invention was made to include the detection and correction of red eye defects at different resolution and more particularly at (low resolution) as taught by Benati in the Red-Eye removal image processing of Hardeberg.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jayesh A. Patel whose telephone number is 571-270-1227. The examiner can normally be reached on M-F 7.00am to 4.30 pm (5-4-9). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marvin M. Lateef can be reached on 571-272-5026. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information

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for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jayesh Patel
12/21/06

JP



**DANIEL SWERDLOW
PRIMARY EXAMINER**